



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

180. Proposed by the late JOSIAH H. DRUMMOND.

If r/s is such a value of p as makes $m/(p^2-2)$ integral, prove that $(3r+4s)/(2r+3s)$ is another such value, so that an indefinite number of integral values may be obtained.

Also, if r/s is such a value of p as makes $2m/(p^2-2)$ integral, prove that $2(r+s)/(r+2s)$ is also such a value.

GEOMETRY.

201. Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, England.

Two plane sections of a right circular cone have their major axes AA' , aa' coplaner, and Aa on one generator equal to $A'a'$ on the other. The projections of the sections on any plane perpendicular to the axis are confocal.

202. Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Chemistry and Physics, The Temple College, Philadelphia, Pa.

The equations $1/(la) + 1/(m\beta) + 1/(n\gamma) = 0$ and $l\beta\gamma + m\alpha\gamma + n\beta\alpha = 0$ represent ellipses. If a, b, c are the sides of the triangle of reference, transform to Cartesian coördinates and find area of each ellipse.

CALCULUS.

166. Proposed by T. N. HAUN, Mohawk, Tenn.

Find the volume of the solid formed by the revolution of the curve $(y^2 + x^2) = a^2(x^2 - y^2)$ round the axis of x .

167. Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Chemistry and Physics, The Temple College, Philadelphia, Pa.

Integrate,
$$\int_0^a \int_0^b \int_0^c \frac{z dx dy dz}{(x^2 + y^2 + z^2)^{\frac{3}{2}}}.$$

MECHANICS.

157. Proposed by T. W. WRIGHT, Schenectady, N. Y.

Explain why a waterfall h feet high can support a column of water $2h$ feet high.

158. Proposed by G. H. HARVILL, A. M., Malakoff, Texas.

Show that a law of density for points in space may be assumed such that the joint mass of any two points which are electrical images of each other in respect to a given sphere may be constant, and that their centers of gravity shall lie on the surface of the sphere.

AVERAGE AND PROBABILITY.

143. Proposed by L. C. WALKER, A. M., Graduate Student, Leland Stanford Jr. University, Cal.

The extremities of two equal lines drawn from a fixed point in the circumference of a given circle is joined. Find the average area of the circle inscribed in the triangle formed.

144. Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance, Ohio.

In a circular park 400 feet in diameter are 4 *equal* circular ponds of *variable* diameter. What is the probability that a sightless person walking in a straight line from the center of the park, will step into a pond?

MISCELLANEOUS.

138. Proposed by L. C. WALKER, A. M., Graduate Student, Leland Stanford Jr. University, Cal.

Find an invariant of the *third degree* in the coefficients of a ternary quartic.

139. Proposed by L. C. WALKER, A. M., Graduate Student, Leland Stanford Jr. University, Cal.

Given the roots of a binary cubic, to find the roots of its two independent covariants.

NOTES.

Professor W. F. Osgood of Harvard University, has been promoted to a full professorship of mathematics. F.

Dr. C. A. Noble has been promoted to an assistant professorship of mathematics at the University of California. F.

Professor Alexander Macfarlane delivered, at Lehigh University, April 20-23, a course of six lectures on the British mathematicians, Kirkham, Babbage, Whewell, Dodgson, Stokes, and Rayleigh. F.

Professor John J. Quinn has brought to public attention a third triangle, to be used with the two triangles commonly used in drawing sets, and in a small circular illustrates many constructions which are easily made by means of this triangle of which he is the inventor. F.

Professor Josiah Willard Gibbs, of Yale University, died at New Haven, April 28th, 1903, of heart disease. Professor Gibbs was born in New Haven, Feb. 11, 1839, and graduated at Yale in 1858. In 1863, he received the degree of Doctor of Philosophy. After studying in Paris, Berlin, and Heidelberg, he was appointed, in 1871, to the Professorship of Mathematical Physics in Yale, which position he held until the time of his death. He was a member of the Royal Society of London, of the National Academy of Science, of the American Mathematical Society, and many other learned bodies. He was an authority of the first rank in thermo-dynamics, and in the application of vector analysis to physical problems. Last year, 1902, he published a work entitled *Elementary Principles in Statistical Mechanics*. F.